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Study: Hen Mortality Affected by Housing System

SWEDEN - Free-range and barn-housed (litter-based) layers were more likely to have bacterial infections and parasites, and to suffer from cannibalism than birds kept in battery cages. These are the main conclusions of a recently published paper by Fossum and colleagues at the National Veterinary Institute in Uppsala investigating the causes of mortality in Swedish layer flocks.

The husbandry systems for laying hens were changed in Sweden during the years 2001 to 2004, and an increase in the number of submissions for necropsy from laying hen farms was noted. Hence, this study was started to compare causes of mortality in different housing systems for commercial laying hens during this change.

Methods

Based on results from routine post-mortem examination of 914 laying hens performed at the National Veterinary Institute (SVA) in Uppsala, Sweden between 2001 and 2004, a retrospective study on the occurrence of diseases and cannibalism, i.e. pecking leading to mortality, in different housing systems was carried out.

Using the number of caged flocks in which important categories of diseases were diagnosed as the baseline, the expected number of flocks with a certain category of disease in the other housing systems were estimated having regard to the total number of flocks.

Whether the actual number of flocks significantly exceeded the expected number was determined using a Poisson distribution for the variance of the baseline number, a continuity correction and the exact value for the Poisson distribution function in Excel 2000.

Results

Common causes of mortality in necropsied laying hens included colibacillosis, erysipelas, coccidiosis, red mite infestation, lymphoid leukosis and cannibalism. Less common diagnoses were Newcastle disease, pasteurellosis and botulism.

Considering the size of the populations in the different housing systems, a larger proportion of laying hens than expected was submitted for necropsy from litter-based systems and free-range production than hens in cages ($P<0.001$).

The study showed a significantly higher occurrence of bacterial and parasitic diseases in laying hens kept in litter-based housing systems and free-range systems than in hens kept in cages ($P<0.001$).

The occurrence of viral diseases was significantly higher in indoor litter-based housing

systems than in cages ($P<0.001$).

Cannibalism showed a significantly higher occurrence in birds kept in litter-based housing systems and free-range systems than in caged birds ($P<0.001$).

Conclusions

The results of the present study indicated that during 2001 to 2004 laying hens housed in litter-based housing system, with or without access to outdoor areas, were at higher risk of infectious disease and cannibalistic behaviour compared to laying hens in cages.

Future research should focus on finding suitable prophylactic measures, including efficient biosecurity routines, to reduce the risk of infectious diseases and cannibalism in litter-based housing systems for laying hens.

Reference

Fossum O., D.S. Jansson, P.E. Etterlin and I. Vagsholm, 2009. Causes of mortality in laying hens in different housing systems in 2001 to 2004. Acta Veterinaria Scandinavica 2009, 51:3doi:10.1186/1751-0147-51-3.